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1 **1. (currently amended)** A method of adding a watermark to a sequence of executable instructions

2 to render the sequence authenticatable,

3 the method comprising the steps of:

4 receiving the sequence of executable instructions and a key; and

5 using the key to modify the sequence of executable instructions so that the watermark may

6 be obtained from the modified sequence, the sequence being modified such that the usefulness of

7 the modified sequence for the sequence's intended purpose is not affected by the modifications

8 made thereto and the watermark representing a watermark value ~~which may be employed to~~

9 ~~authenticate the sequence,~~ alteration or absence of the watermark value being used when the

10 sequence is authenticated to determine whether the sequence is authentic.


1 **2. (canceled)**


1 **3. (previously presented)** The method set forth in claim 2 wherein the step of modifying the

2 sequence includes the steps of:

3 using the key to determine locations in the sequence including modification locations at

4 which the sequence is to be modified; and

5 modifying the sequence at the modification locations such that the locations specified by

6 the key represent the watermark value,

7 whereby the watermark value may be obtained from the modification locations.


1 **4. (original)** The method set forth in claim 3 wherein the step of modifying the sequence includes

2 the step of:

3 inserting one or more executable instructions at each of the modification locations, the

4 inserted instructions having no effect on any output from the execution of the sequence of

5 instructions.

1     **5.** (original)  The method set forth in claim 4 wherein:

2        the instructions at the locations specified by the key represent values of digits of the

3     watermark value.

1     **6.** (original) The method set forth in claim 1 further comprising the step of:

2        providing the watermark value to an authenticating entity that authenticates the

3     watermarked code.

1     **7.** (original) The method set forth in claim 1 further comprising the step of:

2        providing the key to the authenticating entity.

1     **8.** (previously presented) The method set forth in claim 1 wherein:

2        the modified sequence of executable instructions is modified such that when the modified

3     sequence of executable instructions is executed, execution state is produced which has a property

4     that depends on the key,

5     whereby the watermark value is a description of execution state from the modified sequence.

1     **9.** (previously presented) The method set forth in claim 8 wherein:

2        the execution state is a stack depth graph.

1     **10.** (original)The method set forth in claim 9 wherein:

2        the execution state is output from the execution.

1     **11.** (original) The method set forth in claim 10 wherein:

2        the property is an order of elements in the output.

1     **12.** (original) The method set forth in claim 10 wherein:

2        the property is an additional element in the output.

1     **13.** (original) The method set forth in claim 10 wherein:

2        the property is a class of an element in the output.

1    **14.** (original) The method set forth in claim 10 wherein:

2        the property is a constraint that is satisfied by elements of the output.


1    **15.** (original) The method set forth in claim 8 further comprising the step of:

2        providing a description of the produced execution state to an authenticating entity that

3    authenticates the watermarked code.


1    **16.** (original) The method set forth in claim 15 further comprising the step of:

2        providing the key to the authenticating entity.


1    **17.** (previously presented) The method set forth in claim 1 further comprising the step of

2        providing the key to an authenticating entity that authenticates the sequence.


1    **18.** (currently amended) A method of authenticating a watermarked sequence of executable

2    instructions, the watermark having been produced by modifying the sequence according to a key

3    such that certain of the instructions in the sequence represent a watermark value,

4    the method comprising the steps of:

5        receiving the watermarked sequence or a copy thereof;

6        using the key to locate the certain instructions in the received sequence and read the

7    watermark value; and

8        using ~~the watermark value~~<u>alteration or absence of the watermark value</u> to determine

9    whether the received sequence is authentic.


1    **19.** (currently amended) The method of authenticating set forth in claim 18, the method further

2    comprising the step of:

3        receiving another watermark value; and

4        in the step of using <u>alteration or absence of the watermark value</u>~~the watermark value~~ to

5    determine whether the received sequence is authentic, the watermark value is compared to the

6    other watermark value.

1   **20.** (original) The method of authenticating set forth in claim 19, the method further comprising

2   the step of:

3         receiving the key.

1   **21.** (currently-amended) A method of authenticating a ~~watermarked~~ sequence of executable

2   instructions that has been watermarked~~, the watermark having been produced~~ by modifying the

3   sequence according to a key such that when the sequence is executed, <u>first</u> execution state is

4   produced,

5   the method comprising the steps of:

6         receiving a description of ~~the~~ <u>second</u> execution state; and

7         ~~authenticating the watermarked sequence by confirming that~~<u>if</u> the received description

8   <u>does not</u> describe <u>the first</u> ~~s~~ execution state ~~produced by an execution of the modified sequence~~,

9   <u>determining that the sequence of executable instructions whose execution produced the second</u>

10   <u>execution state is not authentic.</u>

1   **22.** (currently amended) The method set forth in claim 21 further comprising the step of:

2         receiving another description of the execution state, the other description describing

3   execution state produced by the execution of the modified sequence; and

4         in the step of ~~authenticating~~<u>determining</u>, comparing the description and the other

5   description.

1   **23.** (original) The method set forth in claim 22 wherein:

2         the other description is a stack depth graph.

1   **24.** (currently amended) The method set forth in claim 21 wherein the execution state is output

2   from the execution, the output having a property which can be determined using the key and

3   the method further comprises the steps of:

4         receiving the output from the execution; and

5         the step of ~~authenticating~~<u>determining</u> includes the steps of

6             receiving the execution state;

7             employing the key to determine the property; and

8          comparing the determined property with the received description.

1    **25.** (original) The method set forth in claim 24 wherein:

2        the determined property is an order of elements in the output.

1    **26.** (original) The method set forth in claim 24 wherein:

2        the determined property is an additional element in the output.

1    **27.** (original) The method set forth in claim 24 wherein:

2        the determined property is a class of an element in the output.

1    **28.** (original) The method set forth in claim 24 wherein:

2        the determined property is a constraint that is satisfied by elements of the output.